

100mA-400mA EOL – Last Buy Date is Jun 30, 2020  
No replacements for these ratings

## Type 3AB / 3ABP

### Fast Blow Fuse Series

HF  3AB/3ABP Series, 6x32mm Ceramic Tube Fast Blow Fuse

RoHS 2 Compliant

#### Description

6x32mm Fast Blow, Ceramic tube body cartridge fuse designed, approved and complied with UL and CSA standard 248-14.

#### Features

- Meet UL and CSA standard 248-14
- Wide operating temperature range
- Bulk packing available
- RoHS 2 compliant
- Halogen Free
- Lead Free

#### Applications

Provide individual protection for components or internal circuits.

- Power supplies
- Battery charger
- Monitor
- Adapter

LEAD FREE =



HALOGEN FREE =



#### Physical Specifications

|           |                                                                                                                                                       |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Materials | Body : Ceramic                                                                                                                                        |
|           | Cap : Nickel Plated Brass Caps                                                                                                                        |
|           | Leads : Matte Tin Plated Copper                                                                                                                       |
| Marking   | On Fuse :                                                                                                                                             |
|           | "bel", "3AB", "Current Rating", "Voltage Rating",                                                                                                     |
|           | "Appropriate Safety Logos", "✓" ( RoHS 2 compliant)                                                                                                   |
|           | On Label :                                                                                                                                            |
|           | "bel", "3AB" or "3ABP", "Current Rating", "Voltage Rating", "Interrupting Rating",<br>"Appropriate Safety Logos" and "✓", "Ⓡ" (China RoHS compliant). |

#### Electrical Characteristics (UL/CSA STD.248-14) Safety Agency Approvals

| Testing Current | Blow Time |         | Amp Range |
|-----------------|-----------|---------|-----------|
|                 | Minimum   | Maximum |           |
| 100%            | 4 hrs.    | N/A     | 100mA-20A |
| 135%            | N/A       | 1 hr.   | 100mA-10A |
| 200%            | N/A       | 5 sec   | 100mA-10A |
|                 | N/A       | 120 sec | 12A-20A   |

| Safety Agency                                                                       | Safety Agency Certificate | Voltage Rating (V) | Ampere Range / Volt @ I.R. ability*                                                                  |
|-------------------------------------------------------------------------------------|---------------------------|--------------------|------------------------------------------------------------------------------------------------------|
|  | E20624                    | 100mA–20A /250V AC | 100mA-1A/250V AC@35A<br>>1A-3.5A/250V AC@100A<br>>3.5A-10A/250V AC@200A<br>100mA-10A/250V AC@10,000A |
|  | LR39772                   |                    |                                                                                                      |
|  | E20624                    |                    | >10A-15A/250V AC@750A<br>>15A-20A/250V AC@1,500A<br>>10A-20A/125V AC@10,000A                         |
|  | JET1037-31003-1010        |                    | 1A-5A/125V AC@500A                                                                                   |
|                                                                                     | JET1037-31003-1011        |                    |                                                                                                      |
|                                                                                     | JET1037-31003-1007        |                    |                                                                                                      |
| *I.R.= Interrupting Rating = Short Circuit Rating(Amps)                             |                           |                    |                                                                                                      |

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## Environmental Specifications

|                           |                                                                                                  |
|---------------------------|--------------------------------------------------------------------------------------------------|
| Shock Resistance          | MIL-STD-202G, Method 213B, Test Condition 1 (100 G's peak for 6 milliseconds; Sawtooth waveform) |
| Vibration Resistance      | MIL-STD-202G, Method 201A (10-55 Hz, 0.06 inch, total excursion).                                |
| Salt Spray Resistance     | MIL-STD-202G, Method 101E, Test Condition B (48 hrs).                                            |
| Insulation Resistance     | MIL-STD-202G, Method 302, Test Condition A (After Opening) 10,000 ohms minimum.                  |
| Solderability             | MIL-STD-202G, Method 208H                                                                        |
| Resistance to solder Heat | MIL-STD-202G, Method 210F, Test Condition B (260+/-5°C, 10+/-1 sec)                              |
| Thermal Shock             | MIL-STD-202G, Method 107G, Test Condition B (-65°C to +125°C).                                   |
| Operating Temperature     | -55°C to +125°C                                                                                  |
| Terminal Strength         | IEC-68-2-21                                                                                      |

## Electrical Specifications

| Catalog Number | Ampere Rating | Typical Cold Resistance (ohms) | Volt-drop @100%In (Volt) max. | Voltage and Interrupting Ratings                                                        | Melting I <sup>2</sup> T <10 mSec (A <sup>2</sup> Sec) | Melting I <sup>2</sup> T @10 In (A <sup>2</sup> Sec) | Maximum Power Dissipation (W) | Agency Approvals                                                                    |                                                                                     |                                                                                     |
|----------------|---------------|--------------------------------|-------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                |               |                                |                               |                                                                                         |                                                        |                                                      |                               |  |  |  |
| 3AB(P) 100-R   | 100mA         | 11.3                           | 4.62                          | See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings | 0.002                                                  | 0.002                                                | 0.59                          | Y                                                                                   | Y                                                                                   |                                                                                     |
| 3AB(P) 125-R   | 125mA         | 10.5                           | 5.18                          |                                                                                         | 0.004                                                  | 0.003                                                | 0.74                          | Y                                                                                   | Y                                                                                   |                                                                                     |
| 3AB(P) 160-R   | 160mA         | 7.26                           | 4.85                          |                                                                                         | 0.008                                                  | 0.005                                                | 0.87                          | Y                                                                                   | Y                                                                                   |                                                                                     |
| 3AB(P) 200-R   | 200mA         | 5.00                           | 4.38                          |                                                                                         | 0.014                                                  | 0.010                                                | 1.02                          | Y                                                                                   | Y                                                                                   |                                                                                     |
| 3AB(P) 250-R   | 250mA         | 3.42                           | 4.05                          |                                                                                         | 0.025                                                  | 0.017                                                | 1.19                          | Y                                                                                   | Y                                                                                   |                                                                                     |
| 3AB(P) 300-R   | 300mA         | 2.52                           | 3.54                          |                                                                                         | 0.044                                                  | 0.032                                                | 1.40                          | Y                                                                                   | Y                                                                                   |                                                                                     |
| 3AB(P) 375-R   | 375mA         | 1.86                           | 3.35                          |                                                                                         | 0.071                                                  | 0.050                                                | 1.58                          | Y                                                                                   | Y                                                                                   |                                                                                     |
| 3AB(P) 500-R   | 500mA         | 0.74                           | 1.50                          | See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings | 0.14                                                   | 0.10                                                 | 1.92                          | Y                                                                                   | Y                                                                                   |                                                                                     |
| 3AB(P) 750-R   | 750mA         | 0.257                          | 0.36                          |                                                                                         | 0.75                                                   | 0.74                                                 | 0.30                          | Y                                                                                   | Y                                                                                   |                                                                                     |
| 3AB(P) 1-R     | 1A            | 0.155                          | 0.28                          |                                                                                         | 1.4                                                    | 1.4                                                  | 0.37                          | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 3AB(P) 1.25-R  | 1.25A         | 0.114                          | 0.27                          |                                                                                         | 2.5                                                    | 2.5                                                  | 0.44                          | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 3AB(P) 1.5-R   | 1.5A          | 0.089                          | 0.27                          |                                                                                         | 3.80                                                   | 3.95                                                 | 0.49                          | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 3AB(P) 1.6-R   | 1.6A          | 0.085                          | 0.27                          |                                                                                         | 4.2                                                    | 4.4                                                  | 0.51                          | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 3AB(P) 2-R     | 2A            | 0.057                          | 0.22                          |                                                                                         | 7.2                                                    | 7.6                                                  | 0.59                          | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 3AB(P) 2.5-R   | 2.5A          | 0.043                          | 0.21                          |                                                                                         | 12                                                     | 13                                                   | 0.70                          | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 3AB(P) 3-R     | 3A            | 0.033                          | 0.17                          |                                                                                         | 21                                                     | 23                                                   | 0.83                          | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 3AB(P) 3.5-R   | 3.5A          | 0.027                          | 0.18                          |                                                                                         | 28                                                     | 31                                                   | 0.91                          | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 3AB(P) 4-R     | 4A            | 0.024                          | 0.17                          |                                                                                         | 36                                                     | 40                                                   | 1.00                          | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 3AB(P) 5-R     | 5A            | 0.018                          | 0.16                          |                                                                                         | 63                                                     | 70                                                   | 1.20                          | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 3AB(P) 6-R     | 6A            | 0.014                          | 0.15                          |                                                                                         | 107                                                    | 123                                                  | 1.40                          | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 3AB(P) 7-R     | 7A            | 0.012                          | 0.16                          |                                                                                         | 141                                                    | 162                                                  | 1.60                          | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 3AB(P) 8-R     | 8A            | 0.010                          | 0.15                          |                                                                                         | 184                                                    | 214                                                  | 1.70                          | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 3AB(P) 10-R    | 10A           | 0.008                          | 0.13                          |                                                                                         | 316                                                    | 372                                                  | 2.00                          | Y                                                                                   | Y                                                                                   | Y                                                                                   |
| 3AB(P) 12-R    | 12A           | 0.009                          | 0.19                          |                                                                                         | 501                                                    | 597                                                  | 2.30                          | Y                                                                                   |                                                                                     | Y                                                                                   |
| 3AB(P) 15-R    | 15A           | 0.007                          | 0.17                          |                                                                                         | 845                                                    | 1023                                                 | 2.70                          | Y                                                                                   |                                                                                     | Y                                                                                   |
| 3AB(P) 20-R    | 20A           | 0.004                          | 0.15                          |                                                                                         | 1598                                                   | 1968                                                 | 3.00                          | Y                                                                                   |                                                                                     |                                                                                     |

Consult manufacturer for other ratings

EOL –  
Last Buy Date is  
Jun 30, 2020



Specifications subject to change without notice

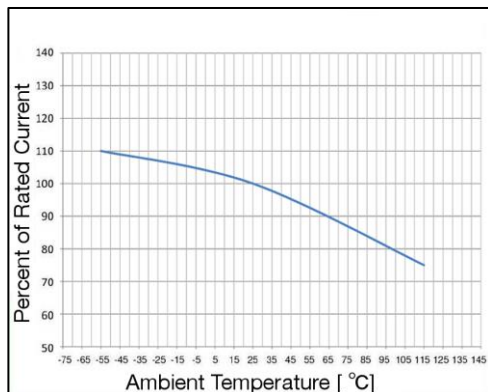
Bel Fuse Inc.  
206 Van Vorst Street  
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+1 201.432.0463  
Bel.US.CS@belf.com  
[belfuse.com/circuit-protection](http://belfuse.com/circuit-protection)

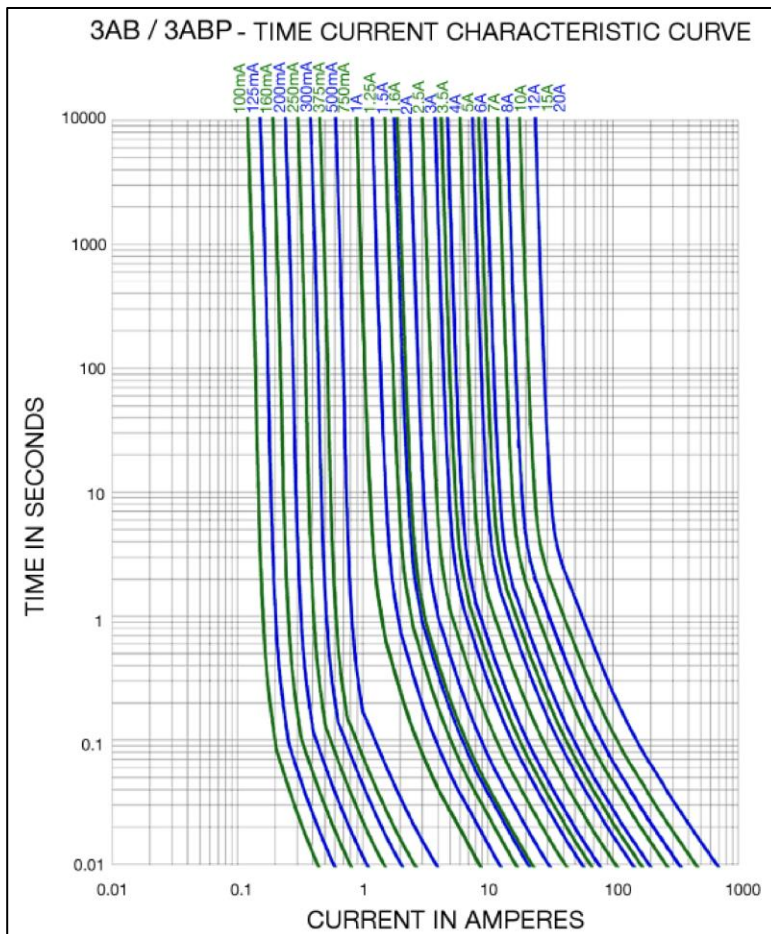
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## Temperature Derating Curve

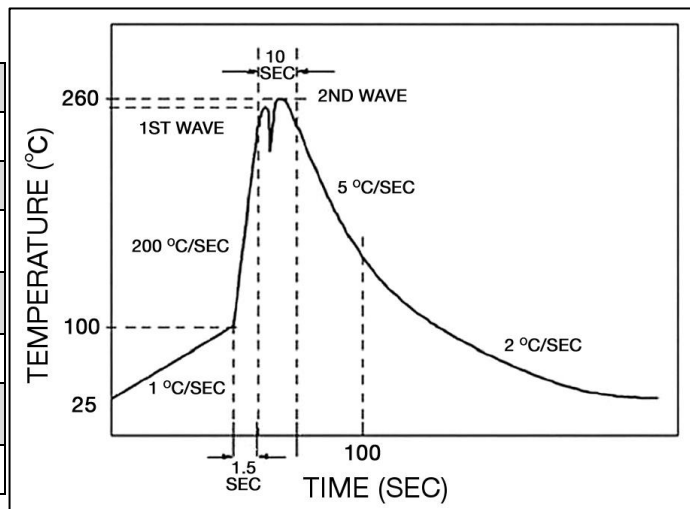


## Average Time Current Curve



## Soldering Parameters

| Lead-free Wave Soldering Profile                   |                                              |
|----------------------------------------------------|----------------------------------------------|
| Wave Soldering Parameter                           |                                              |
| Average ramp-up rate                               | 200°C / second                               |
| Heating rate during preheat                        | typical 1 - 2°C / second<br>Max 4°C / second |
| Final preheat temperature                          | within 125°C of soldering temperature        |
| Peak temperature T <sub>p</sub>                    | 260°C                                        |
| Time within +0°C / -5°C of actual peak temperature | 10 seconds                                   |
| Ramp-down rate                                     | 5°C / second max.                            |



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## Fuse FGNO Explanation

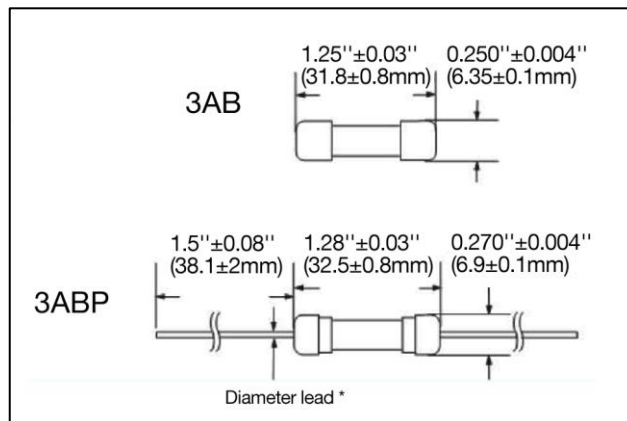
06X3 R [XXXX] -XX

0603R=3AB/0613R=3ABP; [XXXX]=Ampere Rating; XX=See Ordering Information as below

| Fraction | Decimal | Milliamps | Bel FGNO[XXXX] |
|----------|---------|-----------|----------------|
| 1/10     | 0.100   | 100       | 0100           |
| 1/8      | .125    | 125       | 0125           |
|          | .160    | 160       | 0160           |
| 2/10     | .200    | 200       | 0200           |
| 1/4      | .250    | 250       | 0250           |
| 3/10     | .300    | 300       | 0300           |
| 3/8      | .375    | 375       | 0375           |
| 1/2      | .500    | 500       | 0500           |
| 3/4      | .750    | 750       | 0750           |
|          |         |           |                |
|          |         |           |                |
|          |         |           |                |
|          |         |           |                |
|          |         |           |                |
|          |         |           |                |
|          |         |           |                |
|          |         |           |                |
|          |         |           |                |

| Fraction | Decimal | Amps | Bel FGNO[XXXX] |
|----------|---------|------|----------------|
|          | 1.0     | 1    | 1000           |
| 1-1/4    | 1.25    | 1.25 | 1250           |
| 1-1/2    | 1.50    | 1.5  | 1500           |
|          | 1.60    | 1.6  | 1600           |
|          | 2.0     | 2    | 2000           |
| 2-1/2    | 2.5     | 2.5  | 2500           |
|          | 3.0     | 3    | 3000           |
| 3-1/2    | 3.5     | 3.5  | 3500           |
|          | 4.0     | 4    | 4000           |
|          | 5.0     | 5    | 5000           |
|          | 6.0     | 6    | 6000           |
|          | 7.0     | 7    | 7000           |
|          | 8.0     | 8    | 8000           |
|          |         | 10   | 9100           |
|          |         | 12   | 9120           |
|          |         | 15   | 9150           |
|          |         | 20   | 9200           |

## Mechanical Dimensions



\*Diameter of lead wire 0.039" ± 0.002" for all ratings

## Ordering Information

06X3 R XXXX - X X

FUSE TYPE \_\_\_\_\_  
 0603R = 3AB Series  
 0613R = 3ABP Series  
 R = RoHS Compliant \_\_\_\_\_

AMPERE RATING \_\_\_\_\_  
 Refer to fuse FGNO explanation table

PACKAGING CODE \_\_\_\_\_  
 3 = 3AB, Cartridge, 1K / Box  
 3 = 3ABP, Pigtail, Bulk, 1K / Box

VOLTAGE CODE \_\_\_\_\_  
 3 = 250V, for 100mA-20A

## Packaging

| Packaging Option    | Packaging Specification | Quantity | Packaging Code | Inside Tape Spacing |
|---------------------|-------------------------|----------|----------------|---------------------|
| Bulk                | N/A                     | 1000     | 33             | N/A                 |
| Bulk (Pigtail Type) | N/A                     | 1000     | 33             | N/A                 |

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